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Emerson's First Part

THE

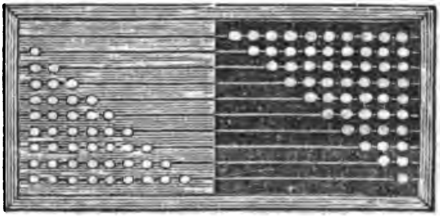
NORTH AMERICAN
ARITHMETIC.

PART FIRST,

FOR

YOUNG LEARNERS.

BY FREDERICK EMERSON,
LATE PRINCIPAL IN THE DEPARTMENT OF ARITHMETIC,
BOYLSTON SCHOOL, BOSTON.



PHILADELPHIA:
HOGAN AND THOMPSON.
1844.

Entered according to Act of Congress, in the year 1838, by Frederick Emerson, in the Clerk's Office of the District Court of the District of Massachusetts.

PREFACE.

In a systematic course of general education, Arithmetic claims a place among the primary objects. Its elementary exercises, when rationally conducted, are adapted to the capacities of children at a very early age. Its influence on the character of children, in developing the reasoning faculties, and habituating the mind to investigation, is highly conducive to progress in every other branch of knowledge. Notwithstanding the obvious truth of this remark, the practice of postponing arithmetic till children arrive at the age of nine or ten years, still prevails in many of our schools, and calls for the attention of those whose influence may correct the error.

The purpose of this manual is, to facilitate the instruction of the younger classes. It contains the first part of a *Course of Exercises in Arithmetic*, which is published in three books, severally denominated, PART FIRST, PART SECOND, and PART THIRD. The method employed for illustrating the subject, it will be seen, is original and peculiar.

PART FIRST is confined to the simple elements, and it may be advantageously used as an introduction to the subsequent study of arithmetic from any larger book now in common use. Learners will, however, find the steps of progress to be most gradual, easy, and certain, in passing from this book immediately into Part Second.

The lessons contained in Part First are all to be performed orally; the slate and pencil not being required. In the title-page will be seen a drawing of an improved structure of the Abacus. It is a convenient apparatus for illustrating the combinations of numbers; although it need not be used in teaching from this book: its use is superseded by cuts and unit marks.

F. E.

Boston, August 1, 1838.

☞ This book is adopted in the Public Schools of the cities of Boston, Salem, Portland, Providence, New York, Philadelphia, and Louisville, by orders of the respective Boards of School Committee and Trustees.

Gift of A. C. Finney
4-14-41

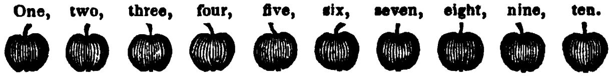
ARITHMETIC.

NUMERATION.

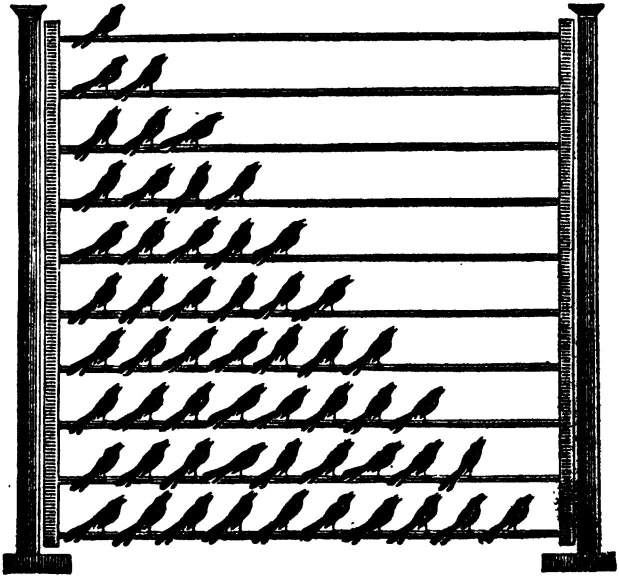
Note to Teachers. The learners are to have their books open before them, while performing the lessons in Numeration. Do not omit any lesson.

LESSON FIRST. I.

Here is the picture of some apples:—count them.



See this flock of black-birds: they have lighted upon the bars of a gate, and are all singing together. Find how many there are on each separate bar.



LESSON SECOND. II.

Note to Teachers. In this lesson, the teacher may read the questions, and the children give the answers; or, if the children can read with fluency, they may read the questions to each other, by turns; each one reading a question to be answered by the scholar next below him, and thus proceeding through the class. This lesson should pass through the class several times at one recitation, until each scholar has had several turns in answering. The chief purpose of the lesson is to show, that numbers are formed, successively, by adding one unit to the next preceding number.

How many stars are one star and one star?

✽ ✽

How many stars are two stars and one star?

✽ ✽ ✽

How many stars are three stars and one star?

✽ ✽ ✽ ✽

How many stars are four stars and one star?

✽ ✽ ✽ ✽ ✽

How many stars are five stars and one star?

✽ ✽ ✽ ✽ ✽ ✽

How many stars are six stars and one star?

✽ ✽ ✽ ✽ ✽ ✽ ✽

How many stars are seven stars and one star?

✽ ✽ ✽ ✽ ✽ ✽ ✽ ✽

How many stars are eight stars and one star?

✽ ✽ ✽ ✽ ✽ ✽ ✽ ✽ ✽

How many stars are nine stars and one star?

✽ ✽ ✽ ✽ ✽ ✽ ✽ ✽ ✽ ✽

Lesson Third. III.

Note to Teachers. The design of the preceding lessons has been, to teach the names, and the comparative magnitude of numbers, from *one* to *ten.* The teacher should now inform the learners, that numbers are represented by FIGURES. He may direct them, to obtain the names of the figures by counting the unit marks, (from left to right,) which stand against the figures severally, in the following table. As this exercise will tend to fix a mental association of each figure with the number of units, which it represents, the lesson should not be omitted, even by children, who are already able to read figures.

| 1

| | 2

| | | 3

| | | | 4

| | | | | 5

| | | | | | 6

| | | | | | | 7

| | | | | | | | 8

| | | | | | | | | 9

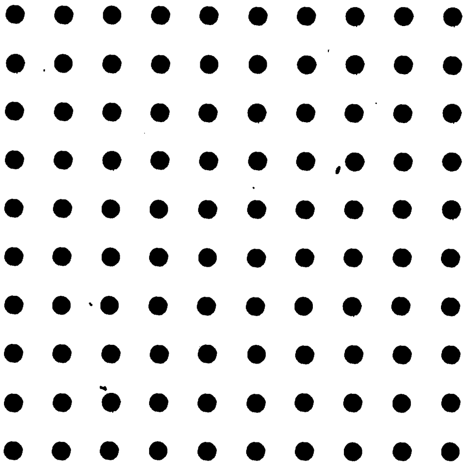
| | | | | | | | | | 10

Lesson Fourth. IV.

Note to Teacher. Make two exercises of this lesson. First, let the children read the words in the columns. Then, let the words be covered with a slip of paper, and the reading be performed on the figures. While reading the figures, lead the children to observe the analogies, *two — twenty; three — thirty; four — forty; five — fifty;* &c.

1	One,
2	two,
3	three,
4	four,
5	five,
6	six,
7	seven,
8	eight,
9	nine,
10	ten,
11	eleven,
12	twelve,
13	thirteen,
14	fourteen,
15	fifteen,
16	sixteen,
17	seventeen,
18	eighteen,
19	nineteen,
20	twenty,
21	twenty-one,
22	twenty-two,
23	twenty-three,
24	twenty-four,
25	twenty-five,
26	twenty-six,
27	twenty-seven,
28	twenty-eight,
29	twenty-nine,
30	thirty
31	thirty-one,
32	thirty-two,
33	thirty-three,
34	thirty-four,
35	thirty-five,
36	thirty-six,
37	thirty-seven,
38	thirty-eight,
39	thirty-nine,
40	forty,
41	forty-one,
42	forty-two,
43	forty-three,
44	forty-four,
45	forty-five,
46	forty-six,
47	forty-seven,
48	forty-eight,
49	forty-nine,
50	fifty,
51	fifty-one,
52	fifty-two,
53	fifty-three,
54	fifty-four,
55	fifty-five,
56	fifty-six,
57	fifty-seven,
58	fifty-eight,
59	fifty-nine,
60	sixty,
61	sixty-one,
62	sixty-two,
63	sixty-three,
64	sixty-four,
65	sixty-five,
66	sixty-six,
67	sixty-seven,
68	sixty-eight,
69	sixty-nine,
70	seventy,
71	seventy-one,
72	seventy-two,
73	seventy-three,
74	seventy-four,
75	seventy-five,
76	seventy-six,
77	seventy-seven,
78	seventy-eight,
79	seventy-nine,
80	eighty,
81	eighty-one,
82	eighty-two,
83	eighty-three,
84	eighty-four,
85	eighty-five,
86	eighty-six,
87	eighty-seven,
88	eighty-eight,
89	eighty-nine,
90	ninety,
91	ninety-one,
92	ninety-two,
93	ninety-three,
94	ninety-four,
95	ninety-five,
96	ninety-six,
97	ninety-seven,
98	ninety-eight,
99	ninety-nine,
100	one hundred.

Lesson Fifth. V.



How many balls are there in the upper line, counted across the page from left to right? How many in the first and second lines, counted together? How many in three lines? How many in four lines? How many in five lines? How many in six lines? How many in seven lines? How many in eight lines? How many in nine lines? How many in ten lines?

Lesson Sixth. VI.

Tell the numbers expressed by these figures.

45	14	70	38	85	22	11	92
78	80	49	18	20	55	44	66
67	36	82	51	53	88	25	27
13	69	43	84	41	23	91	60
46	15	76	39	74	56	77	93
79	48	17	72	87	24	26	32
35	81	50	19	42	57	59	65
68	37	83	52	75	90	33	94

ADDITION.

Note to Teachers. **Learners should henceforth recite with closed books. Very young children, however, may go through once with their books open. The table at the end of each lesson is to be committed to memory.**

Lesson First. I.

Tell me how many trees are 1 tree and 2 trees?

1 and 2 are how many?

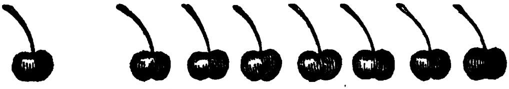
Henry's **sister** gave him 1 apple, and his mother gave him 3 more. How many apples had Henry?

1 and 3 are how many?

James found 1 pear under the tree, and John gave him 4 more. How many pears had James then?

1 and 4 are how many?

Sarah's brother gave her 1 cherry, and her mother gave her 7 more. How many had Sarah then?



1 and 7 are how many?

Recite the table that begins, *One and one are two.*

1 and 1 are 2	1 and 6 are 7
1 and 2 are 3	1 and 7 are 8
1 and 3 are 4	1 and 8 are 9
1 and 4 are 5	1 and 9 are 10
1 and 5 are 6	1 and 10 are 11

LESSON SECOND. II.

2 houses are on one side of a street, and 2 on the other side. How many are there on both sides?

2 and 2 are how many?

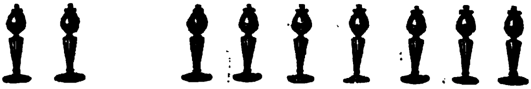
2 chairs are on one side of a room, and 4 on the other side. How many are there on both sides?

2 and 4 are how many?

Suppose 2 hats are in one place, and 5 in another; how many will there be, if we put them together?

2 and 5 are how many?

There are 2 lamps on one side of a table, and 7 on the other side. How many lamps are there in all?



2 and 7 are how many?

Charles found 2 chestnuts under one tree, and 8 under another. How many did he find in all?

2 and 8 are how many?

Recite the table that begins, *Two and one are three.*

2 and 1 are 3	2 and 6 are 8
2 and 2 are 4	2 and 7 are 9
2 and 3 are 5	2 and 8 are 10
2 and 4 are 6	2 and 9 are 11
2 and 5 are 7	2 and 10 are 12

LESSON THIRD. III.

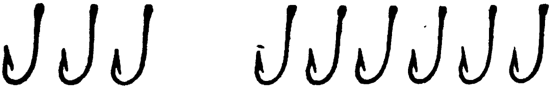
3 birds are on one branch of a grape-vine, and 2 on another branch. How many are on both branches?

3 and 2 are how many?

3 boys are standing to recite, and 3 others are coming to recite with them. How many will there be?

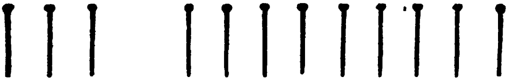
3 and 3 are how many?

William now owns 3 fish-hooks: if he should buy 6 more like them, how many would he then have?



3 and 6 are how many?

Jane put 3 pins into a cushion, and Lucy put in 9 more. How many were there in the cushion then?



3 and 9 are how many?

Tell me how many balls are 3 balls and 10 balls?

3 and 10 are how many?

Recite the table that begins, *Three and one are four.*

3 and 1 are 4
3 and 2 are 5
3 and 3 are 6
3 and 4 are 7
3 and 5 are 8
3 and 6 are 9
3 and 7 are 10
3 and 8 are 11
3 and 9 are 12
3 and 10 are 13

LESSON FOURTH. IV.

In a pond there are 4 geese swimming one way, and 3 another way. How many are there in all?

4 and 3 are how many?

Charles has 4 tame squirrels, and his brother has 4 more. How many have they both together?

4 and 4 are how many?

4 jugs are on one end of a shelf, and 5 are on the other end. How many are there on both ends?

4 and 5 are how many?

Here are 4 jars filled with honey, and 6 more filled with jelly. How many are there of them all?

4 and 6 are how many?

A trader sold 4 axes to one man, and 7 axes to another man. How many did he sell to them both?

4 and 7 are how many?

Recite the table that begins, *Four and one are five.*

4 and 1 are 5
4 and 2 are 6
4 and 3 are 7
4 and 4 are 8
4 and 5 are 9

4 and 6 are 10
4 and 7 are 11
4 and 8 are 12
4 and 9 are 13
4 and 10 are 14

Lesson Fifth. V.

Here are 5 little girls singing together, and 2 are jumping rope. How many are there in all?

5 and 2 are how many?

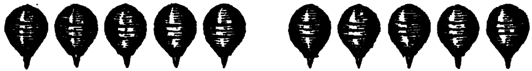
A gunsmith sold 5 guns to a hunter, and 3 more to a fowler. How many guns did he sell them both?

5 and 3 are how many?

Luther found 5 eggs in one nest, and Lucy found 4 in another nest. How many did they both find?

5 and 4 are how many?

Here are 5 tops spinning in one row, and 5 more in another row. How many are there in all?



5 and 5 are how many?

Here are 5 keys for trunk locks, and 6 keys for desk locks. How many are there in the whole?

5 and 6 are how many?

Recite the table that begins, *Five and one are six.*

5 and 1 are 6	5 and 6 are 11
5 and 2 are 7	5 and 7 are 12
5 and 3 are 8	5 and 8 are 13
5 and 4 are 9	5 and 9 are 14
5 and 5 are 10	5 and 10 are 15

Lesson Sixth. VI.

6 pear-trees are standing in a row, and 2 more are standing near them. How many are there in all?

6 and 2 are how many?

6 robins were on the ground, and 3 more have lighted near them. How many are there in all?

6 and 3 are how many?

An Indian shot 6 arrows at partridges, and 4 at wild turkeys. How many arrows did he shoot away?

6 and 4 are how many?

A trader sold 6 shovels to a well-digger, and 5 more to a farmer. How many did he sell to both?

6 and 5 are how many?

There are 6 vials filled with one kind of medicine, and 6 with another. How many are there in all?

6 and 6 are how many?

Recite the table that begins, *Six and one are seven.*

6 and 1 are 7
6 and 2 are 8
6 and 3 are 9
6 and 4 are 10
6 and 5 are 11

6 and 6 are 12
6 and 7 are 13
6 and 8 are 14
6 and 9 are 15
6 and 10 are 16

Note to Teachers. In all the preceding lessons in addition, the learners have been enabled to obtain their answers by counting the pictures of the objects embraced in the questions; and if they have obtained any conception of the addition of abstract numbers, the acquirement has been incidental. The subsequent exercises, however, will render this acquirement more certain. In the following lessons, the numbers embraced in the questions are represented by *unit marks;* and the teacher must direct the learners to count these marks, as they have heretofore counted the pictures.

LESSON SEVENTH. VII.

If you had 7 nuts in one pocket, and 2 in the other, how many would you have in both pockets?

| | | | | | | | |

7 and 2 are how many?

Stephen put 7 pins into a pin-box, and Henrietta put in 3 more. How many did they both put in?

| | | | | | | | | |

7 and 3 are how many?

If you had 7 pins on one sleeve, and 4 on the other, how many would you then have on both sleeves?

| | | | | | | | | | |

7 and 4 are how many?

John gave 7 apples for a picture, and 5 more for a new book. How many apples did he give for both?

| | | | | | | | | | | |

7 and 5 are how many?

Joseph had 7 marbles, and his brother James gave him 6 more. How many marbles had Joseph then?

| | | | | | | | | | | | |

7 and 6 are how many?

Recite the table that begins, *Seven and one are eight.*

7 and 1 are 8	7 and 6 are 13
7 and 2 are 9	7 and 7 are 14
7 and 3 are 10	7 and 8 are 15
7 and 4 are 11	7 and 9 are 16
7 and 5 are 12	7 and 10 are 17

Lesson Eighth. VIII.

James gave 8 quills for a bow, and 2 quills for an arrow. How many quills did he give for both?

I I I I I I I I   I I

8 and 2 are how many?

8 boys are on one end of a form, and 3 on the other end. How many are on the whole form?

I I I I I I I I   I I I

8 and 3 are how many?

Harriet owns 8 story-books, and 4 school-books. How many books does Harriet own of both kinds?

I I I I I I I I   I I I I

8 and 4 are how many?

Susan has 8 plums, and George has 5. If George give his to Susan, how many will she then have?

I I I I I I I I   I I I I I

8 and 5 are how many?

Richard has 8 white marbles, and Francis has 6 How many will there be, if they put them together?

I I I I I I I I   I I I I I I

8 and 6 are how many?

Caroline and Frances recited a lesson in arithmetic together; Caroline answered 8 questions, and Frances answered 7. How many did they both answer?

I I I I I I I I   I I I I I I I

8 and 7 are how many?

Recite the table, that begins, *Eight and one are nine.*

8 and 1 are 9	8 and 6 are 14
8 and 2 are 10	8 and 7 are 15
8 and 3 are 11	8 and 8 are 16
8 and 4 are 12	8 and 9 are 17
8 and 5 are 13	8 and 10 are 18

Lesson Ninth. IX.

If I put 9 books down in a pile, and you put on 2 more, how many books will there be in the pile?

| | | | | | | | | | |

9 and 2 are how many?

There were 9 plums under the tree, and Henry shook off 3 more. How many were there then?

| | | | | | | | | | | |

9 and 3 are how many?

If I pull out 9 quills from a bunch, and then pull out 4 more, how many shall I have taken out?

| | | | | | | | | | | | |

9 and 4 are how many?

There is a class of 9 boys, and 5 girls, studying arithmetic. How many are there in the class?

| | | | | | | | | | | | | |

9 and 5 are how many?

A fisherman caught 9 fishes in a net, and 6 more with a hook. How many did he catch in all?

| | | | | | | | | | | | | | |

9 and 6 are how many?

Horatio and Edmund keep their books upon the same shelf. Horatio has 9 books, and Edmund has only 7. How many books have they together?

| | | | | | | | | | | | | | | |

9 and 7 are how many?

Recite the table that begins, *Nine and one are ten.*

9 and 1 are 10	9 and 6 are 15
9 and 2 are 11	9 and 7 are 16
9 and 3 are 12	9 and 8 are 17
9 and 4 are 13	9 and 9 are 18
9 and 5 are 14	9 and 10 are 19

LESSON TENTH. X.

If I should call 10 boys up to the desk, and then should call 2 more, how many would be called?

| | | | | | | | | | | |

10 and 2 are how many?

William had 10 marbles, and, returning from school, he found 3 more. How many had he then?

| | | | | | | | | | | | |

10 and 3 are how many?

10 boys were going to school, and overtook 4 more. How many were there going to school together?

| | | | | | | | | | | | | |

10 and 4 are how many?

In a fruit-basket there were 10 red apples, and 5 yellow ones. How many were in the basket?

| | | | | | | | | | | | | | |

10 and 5 are how many?

In a hen-coop there are 10 white hens, and 6 black ones. How many of both colors are in the coop?

| | | | | | | | | | | | | | | |

10 and 6 are how many?

James has a new jacket, trimmed with bright buttons; and there are 10 of these buttons on each side. How many are on both sides, counted together?

| | | | | | | | | | | | | | | | | | | |

10 and 10 are how many?

Recite the table that begins, *Ten and one are eleven.*

10 and 1 are 11	10 and 6 are 16
10 and 2 are 12	10 and 7 are 17
10 and 3 are 13	10 and 8 are 18
10 and 4 are 14	10 and 9 are 19
10 and 5 are 15	10 and 10 are 20

SUBTRACTION.

Note to Teachers. Here explain to the learners, that the cipher (0) represents nothing of itself, being used only to occupy a place. Also, lead them to observe the correspondence between addition and subtraction.

Lesson First. I.

There was 1 pitcher on the table, but a careless boy knocked it off. What is left upon the table?

1 taken from where there was 1, leaves what?

2 trees stood near by, but the wind has blown 1 of them down. What number is left standing?

1 taken from 2, leaves what number?

3 chairs were standing in a row, but a child has thrown 1 of them down. How many are upright?

1 from 3 leaves how many?

7 sugar-loaves are on a shelf; one of them has the top broken off. How many of them are whole?

1 from 7 leaves how many?

Recite the table beginning, *One from one leaves nothing.*

1 from 1 leaves 0
1 from 2 leaves 1
1 from 3 leaves 2
1 from 4 leaves 3
1 from 5 leaves 4

1 from 6 leaves 5
1 from 7 leaves 6
1 from 8 leaves 7
1 from 9 leaves 8
1 from 10 leaves 9

LESSON SECOND. II.

Henry attempted to roll 3 hoops at once, but 2 of them have fallen down. What number is still up?

2 from 3 leaves what number?

5 boys came up to recite, but 2 of them were sent back for having no lessons. How many recited?

2 from 5 leaves how many?

Here are 6 cherries, 2 of which have lost off their stems? How many are there with stems on?

2 from 6 leaves how many?

7 bottles were standing on a table, but 2 of them are turned down. How many are still upright?

2 from 7 leaves how many?

Here are 8 pitchers, and 2 of them are placed bottom upward. How many are right side up?

2 from 8 leaves how many?

Recite the table beginning, *Two from two leaves nothing*.

2 from 2 leaves 0	2 from 7 leaves 5
2 from 3 leaves 1	2 from 8 leaves 6
2 from 4 leaves 2	2 from 9 leaves 7
2 from 5 leaves 3	2 from 10 leaves 8
2 from 6 leaves 4	2 from 11 leaves 9

Lesson Third. III.

A tobacco-smoker, having 5 pipes, has broken the stems off of 3 of them. How many remain whole?

3 from 5 leaves how many?

6 hens were eating corn, and a boy frightened 3 of them away. How many of them remained?

3 from 6 leaves how many?

There were 7 farmers, 3 of whom drank rum and whisky, and became miserable; the rest drank water, and were healthy and happy. How many drank water?

3 from 7 leaves how many?

8 bowls are on a table, and 3 of them are turned bottom upward. How many are right side up?

3 from 8 leaves how many?

A silversmith has made 9 thimbles; now, if he sell 3 of them, how many will he have left?

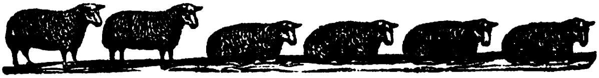
3 from 9 leaves how many?

Recite the table beginning, *Three from three leaves nothing*

3 from 3 leaves 0	3 from 8 leaves 5
3 from 4 leaves 1	3 from 9 leaves 6
3 from 5 leaves 2	3 from 10 leaves 7
3 from 6 leaves 3	3 from 11 leaves 8
3 from 7 leaves 4	3 from 12 leaves 9

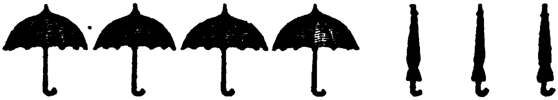
Lesson Fourth. IV.

In a certain yard there are 6 sheep; 4 of them have lain down to rest. How many are standing?



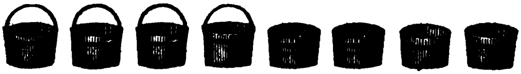
4 from 6 leaves how many?

Here are 7 umbrellas; 4 of them are open, and the rest are shut. How many of them remain shut?



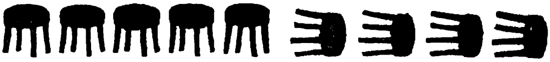
4 from 7 leaves how many?

Here are 8 water-pails, 4 of which have lost their handles. How many remain with handles on?



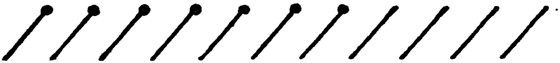
4 from 8 leaves how many?

9 cricket seats were standing in a row, but 4 of them are upset. How many are still standing?



4 from 9 leaves how many?

Augusta has 11 pins, but 4 of them have lost off their heads. How many have their heads on?



4 from 11 leaves how many?

Recite the table beginning, *Four from four leaves nothing.*

4 from 4 leaves 0	4 from 9 leaves 5
4 from 5 leaves 1	4 from 10 leaves 6
4 from 6 leaves 2	4 from 11 leaves 7
4 from 7 leaves 3	4 from 12 leaves 8
4 from 8 leaves 4	4 from 13 leaves 9

Note to Teachers. Learners will generally discover the corresp of addition and subtraction. It will be well, however, for the teach impress the correspondence of these two operations, by frequently prop questions, tous, — ' Five and how many make eight? — Then three fr eight leaves how many?'

The learners must be informed, that the unit marks which are inclined represent the number to be subtracted, and those which are upright show the number that will remain.

Lesson Fifth. V.

Robert had 7 nuts in his pocket, but he lost out 5 of them. How many of them then remained?

| | /////

5 from 7 leaves how many?

Thomas put 8 chestnuts into the embers to roast, but 5 of them burnt up. How many were saved?

| | | /////

5 from 8 leaves how many?

9 boys were playing ball, but 5 of them became tired, and went home. How many remained?

| | | | /////

5 from 9 leaves how many?

Charles had 10 marbles, and he gave his brother John 5 of them. What number had he left?

| | | | | /////

5 from 10 leaves how many?

A hen had 11 little chickens, but the rats caught 5 of them. How many of them then remained?

| | | | | | /////

5 from 11 leaves how many?

Recite the table beginning, *Five from five leaves nothing.*

5 from 5 leaves 0	5 from 10 leaves 5
5 from 6 leaves 1	5 from 11 leaves 6
5 from 7 leaves 2	5 from 12 leaves 7
5 from 8 leaves 3	5 from 13 leaves 8
5 from 9 leaves 4	5 from 14 leaves 9

LESSON SIXTH. VI.

I placed 7 books upright on a shelf, but 6 of them have fallen down. What number remains upright?

| //////

6 from 7 leaves what number?

There were 8 chairs in a room, but 6 of them have been carried out. How many remain in the room?

| | //////

6 from 8 leaves how many?

9 birds lighted on a tree, but a little dog frightened off 6 of them. How many then remained?

| | | //////

6 from 9 leaves how many?

If a farmer who has 10 cows should sell 6 of them, how many cows would he then have remaining?

| | | | //////

6 from 10 leaves how many?

Joseph bought 11 quills, but he lost 6 of them while going home. How many had he left?

| | | | | //////

6 from 11 leaves how many?

There were 12 little girls in a certain class, but 6 of them neglected their lessons, and were put out of the class. How many remained in the class?

| | | | | | //////

6 from 12 leaves how many?

Recite the table beginning, *Six from six leaves nothing.*

6 from 6 leaves 0
6 from 7 leaves 1
6 from 8 leaves 2
6 from 9 leaves 3
6 from 10 leaves 4

6 from 11 leaves 5
6 from 12 leaves 6
6 from 13 leaves 7
6 from 14 leaves 8
6 from 15 leaves 9

Lesson Seventh. VII.

A trader bought 9 barrels of flour, and sold 7 of them. How many had he then remaining?

| | / / / / / / /

7 from 9 leaves how many?

10 boys ran a race in the wind, and 7 of them lost off their hats. How many saved their hats on?

| | | / / / / / / /

7 from 10 leaves how many?

11 doves were picking up oats in the yard, and a dog drove off 7 of them. How many remained?

| | | | / / / / / / /

7 from 11 leaves how many?

Henry's pear-tree had 12 blossoms on it; 7 of them dropped off; the rest ripened. How many ripened?

| | | | | / / / / / / /

7 from 12 leaves how many?

Stephen received 13 quills, and gave away 7 of them for paper. How many had he remaining?

| | | | | | / / / / / / /

7 from 13 leaves how many?

14 boys started to go to school together; but 7 of them went off in a boat, and were upset, and drowned. How many of them went safely to the school?

| | | | | | | / / / / / / /

7 from 14 leaves how many?

Recite the table beginning, *Seven from seven leaves nothing.*

7 from 7 leaves 0
7 from 8 leaves 1
7 from 9 leaves 2
7 from 10 leaves 3
7 from 11 leaves 4

7 from 12 leaves 5
7 from 13 leaves 6
7 from 14 leaves 7
7 from 15 leaves 8
7 from 16 leaves 9

Lesson Eighth. VIII.

9 boys were in a stage-coach, and 8 of them were turned out for being noisy. How many rode on?

| ////////

8 from 9 leaves how many?

Joseph had 10 sheets of paper, but he has sold 8 sheets. How many sheets has he remaining?

| | ////////

8 from 10 leaves how many?

If I had 11 pens, and I should give you 8 of them, how many pens should I then have remaining?

| | | ////////

8 from 11 leaves how many?

12 pears grew upon a little pear-tree, and 8 of them have dropped off. How many are still on the tree?

| | | | ////////

8 from 12 leaves how many?

A ship's crew consisted of 13 men, and 8 of them died while at sea. How many arrived safe in port?

| | | | | ////////

8 from 13 leaves how many?

In a certain class there were 14 scholars; 8 of them were thoughtless and idle; the remainder were very good scholars. How many were good scholars?

| | | | | | ////////

8 from 14 leaves how many?

Recite the table beginning, *Eight from eight leaves nothing*.

8 from 8 leaves 0	8 from 13 leaves 5
8 from 9 leaves 1	8 from 14 leaves 6
8 from 10 leaves 2	8 from 15 leaves 7
8 from 11 leaves 3	8 from 16 leaves 8
8 from 12 leaves 4	8 from 17 leaves 9

Lesson Ninth. IX.

12 boys had leave to go out and play, but only 9 of them chose to go. How many remained in?

I I I / / / / / / / / /

Stephen bought 14 quills, and in writing he has used 9 of them. How many has he remaining?

I I I I I / / / / / / / / /

John got 15 quills, and lost 9. How many remain?

I I I I I I / / / / / / / / /

Recite the table beginning, *Nine from nine leaves nothing*

9	from 9	leaves	0	9	from 14	leaves	5
9	from 10	leaves	1	9	from 15	leaves	6
9	from 11	leaves	2	9	from 16	leaves	7
9	from 12	leaves	3	9	from 17	leaves	8
9	from 13	leaves	4	9	from 18	leaves	9

Lesson Tenth. X.

James had 12 peaches given him, and he gave 10 of them to his mother. How many had he left?

I I / / / / / / / / / /

Lucy put 15 pins in a cushion, and then took out 10 of them. What number remained in the cushion?

I I I I I / / / / / / / / / /

Ann had 17 pins, and lost 10. How many remained?

I I I I I I I / / / / / / / / / /

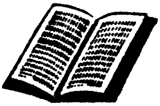
Recite the table beginning, *Ten from ten leaves nothing.*

10	from 10	leaves	0	10	from 15	leaves	5
10	from 11	leaves	1	10	from 16	leaves	6
10	from 12	leaves	2	10	from 17	leaves	7
10	from 13	leaves	3	10	from 18	leaves	8
10	from 14	leaves	4	10	from 19	leaves	9

MULTIPLICATION.

Lesson First. I.

A father promised his son a new book for every time he recited correctly, during the week. The week passed on, and the boy recited correctly only once. What number of books did he receive?

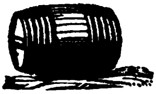


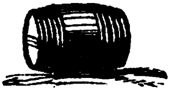
Once 1 is what number?

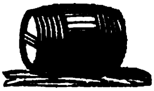
Charles caught 1 fish every time he went out to angle. How many did he catch in going 2 times?

2 times 1 are how many?

A young cooper worked 3 days, and made 1 barrel each day. How many barrels did he make in all?







3 times 1 are how many?

Stephen plays at foot-ball; and he loses 1 ball every week. How many will he lose in 4 weeks

4 times 1 are how many?

Recite the table that begins, *Once one is one.*

Once 1 is 1	6 times 1 are 6
2 times 1 are 2	7 times 1 are 7
3 times 1 are 3	8 times 1 are 8
4 times 1 are 4	9 times 1 are 9
5 times 1 are 5	10 times 1 are 10

LESSON SECOND. II.

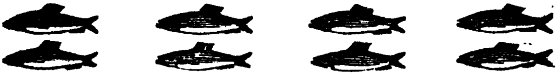
A boy has 2 hands:—how many hands have 2 boys?

2 times 2 are how many?

A rabbit has 2 ears:—how many ears have 3 rabbits?

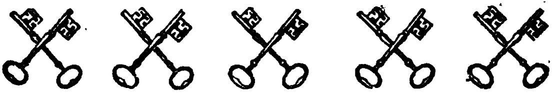
3 times 2 are how many?

James caught 2 fishes every time he went a fishing. How many did he catch in going 4 times?



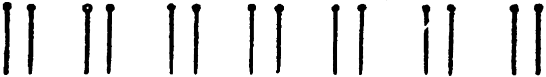
4 times 2 are how many?

If 1 desk have 2 keys, how many keys have 5 desks?



5 times 2 are how many?

Harriet lost 2 pins every time she went to school. Now, how many did she lose in going 7 times?



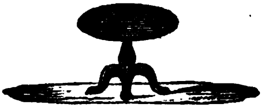
7 times 2 are how many?

Recite the table that begins, *Once two is two.*

Once 2 is 2	6 times 2 are 12
2 times 2 are 4	7 times 2 are 14
3 times 2 are 6	8 times 2 are 16
4 times 2 are 8	9 times 2 are 18
5 times 2 are 10	10 times 2 are 20

LESSON THIRD. III.

How many legs are there on 1 common light stand?



Once 3 is how many?

If one stand have 3 legs, how many have 2 stands?

2 times 3 are how many?

When Henry was learning to write, he used 3 quills a week. How many did he use in 3 weeks?

3 times 3 are how many?

If one fork have 3 points, how many have 4 forks?

4 times 3 are how many?

We generally find 3 clover leaves growing upon one stem. How many leaves grow upon 5 stems?

5 times 3 are how many?

Recite the table that begins, *Once three is three.*

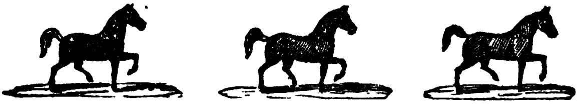
Once 3 is 3	6 times 3 are 18
2 times 3 are 6	7 times 3 are 21
3 times 3 are 9	8 times 3 are 24
4 times 3 are 12	9 times 3 are 27
5 times 3 are 15	10 times 3 are 30

Lesson Fourth. IV.

2 school-houses are so placed, that we see 4 windows in each. How many do we see in both?

2 times 4 are how many?

3 horses are trotting off without riders. Each horse has 4 feet. How many feet have they all?



3 times 4 are how many?

A crib has 4 legs:—how many legs have 4 cribs?

4 times 4 are how many?

Here are 5 chairs:—how many legs have they all?

5 times 4 are how many?

Here are 6 short ladders, each ladder having 4 rounds. How many rounds are there in all?

6 times 4 are how many?

Recite the table that begins, *Once four is four.*

Once 4 is 4	6 times 4 are 24
2 times 4 are 8	7 times 4 are 28
3 times 4 are 12	8 times 4 are 32
4 times 4 are 16	9 times 4 are 36
5 times 4 are 20	10 times 4 are 40

Lesson Fifth. V.

If 2 boys, that have 5 books apiece, should put their books together, how many would there be? To learn the answer, you may count these balls.

●● ●●
●●● ●●●

2 times 5 are how many?

Lucy gets 5 merit-marks every time she recites. How many does she get in reciting 3 times?

●● ●● ●●
●●● ●●● ●●●

3 times 5 are how many?

A lady, who had 4 daughters, gave each of them 5 books. What number did she give them all?

●● ●● ●● ●●
●●● ●●● ●●● ●●●

4 times 5 are how many?

Sarah reads 5 pages of history every morning. How many pages does she read in 5 mornings?

●● ●● ●● ●● ●●
●●● ●●● ●●● ●●● ●●●

5 times 5 are how many?

If you get 5 merit-tickets every week, for perfect lessons, how many can you get in 6 weeks?

●● ●● ●● ●● ●● ●●
●●● ●●● ●●● ●●● ●●● ●●●

6 times 5 are how many?

If Joseph should perform 5 lessons every day, how many lessons would he perform in 7 days?

●● ●● ●● ●● ●● ●● ●●
●●● ●●● ●●● ●●● ●●● ●●● ●●●

7 times 5 are how many?

Recite the table that begins, *Once five is five.*

Once 5 is 5	6 times 5 are 30
2 times 5 are 10	7 times 5 are 35
3 times 5 are 15	8 times 5 are 40
4 times 5 are 20	9 times 5 are 45
5 times 5 are 25	10 times 5 are 50

Lesson Sixth. VI.

Little Charles has had 2 picture-books given to him; and in each book there are 6 pictures. How many pictures are there in both of the books?

●●● ●●●
●●● ●●●

2 times 6 are how many?

3 wagons went to market, carrying 6 barrels of flour apiece. How many did they all carry?

●●● ●●● ●●●
●●● ●●● ●●●

3 times 6 are how many?

There are 4 wire cages, in each of which there are 6 birds. How many birds are there in all?

●●● ●●● ●●● ●●●
●●● ●●● ●●● ●●●

4 times 6 are how many?

If a clerk in a book-store use 6 quills in one week, what number of quills will he use in 5 weeks?

●●● ●●● ●●● ●●● ●●●
●●● ●●● ●●● ●●● ●●●

5 times 6 are how many?

If you answer 6 questions in reciting once, how many will you answer in reciting 6 times?

●●● ●●● ●●● ●●● ●●● ●●●
●●● ●●● ●●● ●●● ●●● ●●●

6 times 6 are how many?

A fishing-party went off in 7 boats, and each boat carried 6 men. How many went in the party?

●●● ●●● ●●● ●●● ●●● ●●● ●●●
●●● ●●● ●●● ●●● ●●● ●●● ●●●

7 times 6 are how many?

Recite the table that begins, *Once six is six.*

Once 6 is 6	6 times 6 are 36
2 times 6 are 12	7 times 6 are 42
3 times 6 are 18	8 times 6 are 48
4 times 6 are 24	9 times 6 are 54
5 times 6 are 30	10 times 6 are 60

Lesson Seventh. VII.

Suppose a scholar should answer 7 questions in arithmetic every time his class recites; — how many questions would he answer in reciting once?

●●●
●●●●

Once 7 is how many?

If you had 7 nuts in each of your 2 hands, how many would you have, counting them together?

●●● ●●●
●●●● ●●●●

2 times 7 are how many?

If I give you some raisins 3 times, giving you 7 in number each time, how many will you receive?

●●● ●●● ●●●
●●●● ●●●● ●●●●

3 times 7 are how many?

If 4 boys stand up to read, and each boy read 7 lines, what number of lines will they all read?

●●● ●●● ●●● ●●●
●●●● ●●●● ●●●● ●●●●

4 times 7 are how many?

If you give 7 apples for one sheet of letter-paper how many apples must you give for 5 sheets?

●●● ●●● ●●● ●●● ●●●
●●●● ●●●● ●●●● ●●●● ●●●●

5 times 7 are how many?

Suppose a boy to give 7 chestnuts for one apple; how many chestnuts must he give for 6 apples?

●●● ●●● ●●● ●●● ●●● ●●●
●●●● ●●●● ●●●● ●●●● ●●●● ●●●●

6 times 7 are how many?

Recite the table that begins, *Once seven is seven.*

Once 7 is 7	6 times 7 are 42
2 times 7 are 14	7 times 7 are 49
3 times 7 are 21	8 times 7 are 56
4 times 7 are 28	9 times 7 are 63
5 times 7 are 35	10 times 7 are 70

Lesson Eighth. VIII.

If a hunter should shoot 8 foxes every time he went out into the woods a hunting, what number of foxes would he shoot by going out once?

●●●●
●●●●

Once 8 is how many?

If there be 8 leaves in one writing-book, how many leaves will there be in 2 writing-books?

●●●● ●●●●
●●●● ●●●●

2 times 8 are how many?

Stephen was 8 weeks in this book, and James was 3 times as long. How long was James in it?

●●●● ●●●● ●●●●
●●●● ●●●● ●●●●

3 times 8 are how many?

How many roses may be gathered from 4 rose-bushes; allowing each bush to bear 8 roses?

●●●● ●●●● ●●●● ●●●●
●●●● ●●●● ●●●● ●●●●

4 times 8 are how many?

If 8 boys can sit upon one form, what number of boys can sit upon 5 forms of the same length?

●●●● ●●●● ●●●● ●●●● ●●●●
●●●● ●●●● ●●●● ●●●● ●●●●

5 times 8 are how many?

How many oranges can you put into 6 fruit-baskets; allowing each basket to contain 8 oranges?

●●●● ●●●● ●●●● ●●●● ●●●● ●●●●
●●●● ●●●● ●●●● ●●●● ●●●● ●●●●

6 times 8 are how many?

Recite the table that begins, *Once eight is eight.*

Once 8 is 8
2 times 8 are 16
3 times 8 are 24
4 times 8 are 32
5 times 8 are 40
6 times 8 are 48
7 times 8 are 56
8 times 8 are 64
9 times 8 are 72
10 times 8 are 80

Lesson Ninth. IX.

If 9 persons can ride inside of one stage-coach, how many can ride inside of 2 stage-coaches?

●●●● ●●●●
●●●●● ●●●●●

3 men went out a fox-hunting, and each man caught 9 foxes. How many did they all catch?

●●●● ●●●● ●●●●
●●●●● ●●●●● ●●●●●

If one boy eat 9 plums, how many will 4 boys eat?

●●●● ●●●● ●●●● ●●●●
●●●●● ●●●●● ●●●●● ●●●●●

Recite the table that begins, *Once nine is nine.*

Once 9 is 9	6 times 9 are 54
2 times 9 are 18	7 times 9 are 63
3 times 9 are 27	8 times 9 are 72
4 times 9 are 36	9 times 9 are 81
5 times 9 are 45	10 times 9 are 90

Lesson Tenth. X.

James has had 10 new books, and Caroline has had twice as many. How many has Caroline had?

●●●●● ●●●●●
●●●●● ●●●●●

Edward has 3 jackets, and on each jacket there are 10 buttons. How many buttons are there on all?

●●●●● ●●●●● ●●●●●
●●●●● ●●●●● ●●●●●

If one box hold 10 hats, how many will 4 boxes hold?

●●●●● ●●●●● ●●●●● ●●●●●
●●●●● ●●●●● ●●●●● ●●●●●

Recite the table that begins, *Once ten is ten.*

Once 10 is 10	6 times 10 are 60
2 times 10 are 20	7 times 10 are 70
3 times 10 are 30	8 times 10 are 80
4 times 10 are 40	9 times 10 are 90
5 times 10 are 50	10 times 10 are 100

DIVISION.

Note to Teachers. The correspondence of Multiplication and Division, if not discovered by the learners, should be pointed out by the teacher.

Lesson First. I.

When Nathaniel was sick, one of his school-mates brought 4 grapes to him; but his physician said, he must eat only one at a time. How many times could he have 1, before they would all be gone?

$$\underbrace{\bullet}\underbrace{\bullet}\underbrace{\bullet}\underbrace{\bullet}$$

How many times 1 are there in 4?

If a man catch 1 fish every time he goes out a fishing, how many times must he go out to catch 6?

$$\underbrace{\bullet}\underbrace{\bullet}\underbrace{\bullet}\underbrace{\bullet}\underbrace{\bullet}\underbrace{\bullet}$$

How many times 1 are there in 6?

A certain farmer has 4 oxen, and it takes 2 of them to make a pair. How many pairs of oxen has he?

$$\underbrace{\bullet\bullet}\underbrace{\bullet\bullet}$$

How many *twos* are there in 4?

Asa can carry 2 sticks of wood at once; and he has 6 sticks to carry off. How many times must he go?

$$\underbrace{\bullet\bullet}\underbrace{\bullet\bullet}\underbrace{\bullet\bullet}$$

How many times 2 are there in 6?

John gets up 2 places in his class every day. In how many days will he get above 8 scholars?

$$\underbrace{\bullet\bullet}\underbrace{\bullet\bullet}\underbrace{\bullet\bullet}\underbrace{\bullet\bullet}$$

How many times 2 are there in 8?

Recite the table that begins, *Two in two, once.*

2 in 2, once.	2 in 12, 6 times.
2 in 4, 2 times.	2 in 14, 7 times.
2 in 6, 3 times.	2 in 16, 8 times.
2 in 8, 4 times.	2 in 18, 9 times.
2 in 10, 5 times.	2 in 20, 10 times.

LESSON SECOND. II.

Robert had 6 baskets to carry into the field, and he could carry only 3 at a time. How many times had he to go, in order to carry off the whole?

$$\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}$$

How many times 3 in 6?

If here were 9 books, how many times could I take off 3 books, before they would all be gone?

$$\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}$$

How many times 3 in 9?

If a gunner shoot 3 plovers every time he fires, how many times must he fire, to shoot 12 plovers?

$$\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}$$

How many times 3 in 12?

Laura gets 3 merit-marks for every perfect lesson. How many lessons must she recite, to get 15 marks?

$$\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}$$

How many times 3 in 15?

Suppose 3 books are required to supply one scholar, how many scholars may be supplied from 18 books?

$$\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}$$

How many times 3 in 18?

If a boy can get one pine-apple for 3 oranges, then how many pine-apples can he get for 21 oranges?

$$\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}\,\underbrace{\bullet\bullet\bullet}$$

How many times 3 in 21?

Recite the table that begins, *Three in three, once.*

3 in 3, once.	3 in 18, 6 times.
3 in 6, 2 times.	3 in 21, 7 times.
3 in 9, 3 times.	3 in 24, 8 times.
3 in 12, 4 times.	3 in 27, 9 times.
3 in 15, 5 times.	3 in 30, 10 times.

Lesson Third. III

There is a market woman that has 8 apples, and for every 4 of them she can get one large orange. How many oranges can she get for all her apples?

$$\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}$$

How many times 4 in 8?

If here were a fruit-basket with 12 oranges in it, how many times could you take out 4 oranges?

$$\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}$$

How many times 4 in 12?

If it take 4 sheets of paper to make one copy-book, how many copy-books can be made of 16 sheets?

$$\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}$$

How many times 4 in 16?

If it take 4 horses to draw one stage-coach, how many stage-coaches can be drawn by 20 horses?

$$\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}$$

How many times 4 in 20?

24 boys, that stood in a line, were asked, how many times 4 boys there were of them. You may tell.

$$\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}$$

How many times 4 in 24?

Emeline's new picture-book contains 28 leaves. How many times 4 leaves are there in the book?

$$\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}\underbrace{\bullet\bullet\bullet\bullet}$$

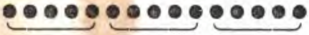
How many times 4 in 28?

Recite the table that begins, *Four in four, once.*

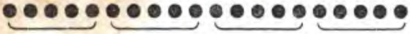
4 in 4, once.	4 in 24, 6 times.
4 in 8, 2 times.	4 in 28, 7 times.
4 in 12, 3 times.	4 in 32, 8 times.
4 in 16, 4 times.	4 in 36, 9 times.
4 in 20, 5 times.	4 in 40, 10 times.

Lesson Fourth. IV.

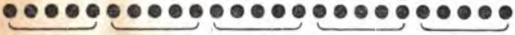
The first class of a certain school contains 15 girls. How many times 5 girls are in the class?



If you write 5 lines in a writing-book, every day, how many days will it take you to write 20 lines?



In a book of 25 leaves, how many times 5 leaves?

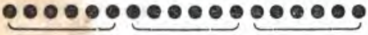


Recite the table that begins, *Five in five, once.*

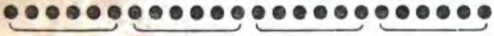
5 in 5, once.	5 in 30, 6 times.
5 in 10, 2 times.	5 in 35, 7 times.
5 in 15, 3 times.	5 in 40, 8 times.
5 in 20, 4 times.	5 in 45, 9 times.
5 in 25, 5 times.	5 in 50, 10 times.

Lesson Fifth. V.

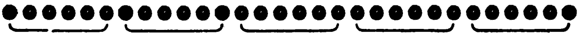
A farmer, who keeps 18 cows, has a separate yard for every 6 of them. How many yards has he?



There is a school of 24 boys, and 6 boys are in each of the classes. How many classes are there?



In a school of 30 girls, how many times 6 girls?



Recite the table that begins, *Six in six, once.*

6 in 6, once.	6 in 36, 6 times.
6 in 12, 2 times.	6 in 42, 7 times.
6 in 18, 3 times.	6 in 48, 8 times.
6 in 24, 4 times.	6 in 54, 9 times.
6 in 30, 5 times.	6 in 60, 10 times.

Lesson Sixth. VI.

Recite the table that begins, *Seven in seven, once.*

7 in 7, once.
7 in 14, 2 times.
7 in 21, 3 times.
7 in 28, 4 times.
7 in 35, 5 times.
7 in 42, 6 times.
7 in 49, 7 times.
7 in 56, 8 times.
7 in 63, 9 times.
7 in 70, 10 times.

Lesson Seventh. VII.

Recite the table that begins, *Eight in eight, once.*

8 in 8, once.
8 in 16, 2 times.
8 in 24, 3 times.
8 in 32, 4 times.
8 in 40, 5 times.
8 in 48, 6 times.
8 in 56, 7 times.
8 in 64, 8 times.
8 in 72, 9 times.
8 in 80, 10 times.

Lesson Eighth. VIII.

Recite the table that begins, *Nine in nine, once.*

9 in 9, once.
9 in 18, 2 times.
9 in 27, 3 times.
9 in 36, 4 times.
9 in 45, 5 times.
9 in 54, 6 times.
9 in 63, 7 times.
9 in 72, 8 times.
9 in 81, 9 times.
9 in 90, 10 times.

Lesson Ninth. IX.

Recite the table that begins, *Ten in ten, once.*

10 in 10, once.
10 in 20, 2 times.
10 in 30, 3 times.
10 in 40, 4 times.
10 in 50, 5 times.
10 in 60, 6 times.
10 in 70, 7 times.
10 in 80, 8 times.
10 in 90, 9 times.
10 in 100, 10 times.

EXERCISES IN ADDITION.

Note to Teachers. Learners, that have been through the preceding lessons only once, may return to page 8, and perform the lessons a second time, reciting with books closed, before they proceed to the following exercises.

In the following lessons in Addition, the teacher may embrace each couple of numbers in a separate question, thus;—'9 and 4 are how many [illegible]

Lessons.

I.	II.	III.	IV.
9 and 4	9 and 6	8 and 6	9 and 5
6 and 3	8 and 1	5 and 3	7 and 3
8 and 5	6 and 6	10 and 9	4 and 4
2 and 2	10 and 8	8 and 8	10 and 3
10 and 4	5 and 4	6 and 4	8 and 4
7 and 7	8 and 2	9 and 2	5 and 2
4 and 1	3 and 2	10 and 6	7 and 4
9 and 7	9 and 3	3 and 3	10 and 5
5 and 5	7 and 6	7 and 2	8 and 7
10 and 1	6 and 5	4 and 3	6 and 2
9 and 8	10 and 2	7 and 5	8 and 3
4 and 2	9 and 9	10 and 7	10 and 10

EXERCISES IN SUBTRACTION.

Note to Teachers. The method of performing these lessons may be similar to that adopted in the preceding lessons. The teacher may embrace each couple of numbers in a question, thus;—'3 from 4 leaves how many?'

Lessons.

I.	II.	III.	IV.
3 from 4	8 from 17	8 from 10	5 from 7
5 from 14	9 from 15	3 from 7	8 from 11
8 from 8	5 from 8	6 from 14	6 from 10
10 from 19	7 from 16	2 from 9	7 from 15
2 from 11	6 from 11	7 from 13	5 from 9
9 from 18	2 from 8	9 from 17	6 from 13
4 from 13	10 from 14	4 from 6	7 from 11
9 from 11	8 from 13	7 from 14	10 from 16
4 from 8	6 from 9	3 from 11	3 from 6
3 from 12	9 from 13	4 from 12	5 from 13
4 from 9	2 from 6	2 from 5	8 from 16
3 from 10	5 from 10	4 from 11	3 from 8
5 from 12	8 from 14	9 from 16	6 from 15
7 from 9	7 from 12	3 from 9	9 from 14

MULTIPLICATION TABLE.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

This table may be used thus — Suppose you wish to find how many are 6 times 7; place your finger on the 6 that stands in the left hand column; then slide the finger to the right till it gets under the 7 that stands in the top line; here you will find 42, which is the answer.

Edward made a number of stars upon his slate, arranging them so that they appeared in rows two ways. Viewing them one way, there were 4 rows of 9 stars each; — thus, there were 4 times 9 stars Viewing them the other way, there were 9 rows of 4 stars each; — thus, there were 9 times 4 stars.

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So Edward learned, that 4 times 9, and 9 times 4, are just alike. The same is true of any two numbers.

EXERCISES IN MULTIPLICATION.

Note to Teachers. Make two questions on each of the following couples of factors, thus;—'3 times 6 are how many?' '6 times 3 are how many?'

LESSONS.

I.	II.	III.	IV.
3 times 6	1 time 8	3 times 5	3 times 7
5 times 8	6 times 6	9 times 10	4 times 4
2 times 2	8 times 10	8 times 8	3 times 10
4 times 10	4 times 5	4 times 6	4 times 8
7 times 7	2 times 8	2 times 9	2 times 5
1 time 4	2 times 3	6 times 10	4 times 7
7 times 9	3 times 9	3 times 3	5 times 10
5 times 5	6 times 7	2 times 7	7 times 8
1 time 10	5 times 6	3 times 4	2 times 6
8 times 9	2 times 10	5 times 7	3 times 8
2 times 4	9 times 9	7 times 10	10 times 10

EXERCISES IN DIVISION.

Note to Teachers. The following couples of numbers are to be embraced in separate questions, thus;—'How many times 4 are there in 36?'

LESSONS.

I.	II.	III.	IV.
4 in 36	2 in 16	5 in 35	9 in 72
3 in 18	2 in 6	7 in 70	9 in 54
5 in 40	3 in 27	5 in 45	10 in 80
2 in 4	6 in 42	3 in 21	9 in 27
4 in 40	5 in 30	4 in 16	7 in 42
7 in 49	2 in 20	3 in 30	8 in 48
1 in 4	9 in 81	4 in 32	9 in 18
7 in 63	6 in 48	2 in 10	10 in 60
5 in 25	3 in 15	4 in 28	7 in 14
1 in 10	9 in 90	5 in 50	7 in 35
8 in 72	8 in 64	7 in 56	9 in 45
2 in 8	4 in 24	2 in 18	7 in 21
6 in 54	2 in 18	3 in 24	8 in 32
1 in 8	6 in 60	10 in 70	7 in 28
6 in 36	3 in 9	9 in 36	10 in 50
8 in 80	2 in 14	6 in 18	8 in 56
4 in 20	3 in 12	9 in 63	10 in 100

SUPPLEMENT TO DIVISION.

Note to Teachers. Division has, thus far, been applied simply to the purpose of finding how many times one number is contained in another. The object now is, to apply Division to the purpose of separating a number into a given number of equal parts.

LESSON.

A boy had 12 raisins to divide equally among 4 little girls. He first gave round one raisin to each girl, and that took 4 raisins. Now, how many times could he give round one raisin to each girl? Then how many raisins would each girl receive?

If you had 20 raisins to divide equally among 4 girls, how many times could you give round one apiece to them? Then how many would each girl receive? How many times 4 are there in 20?

There is a pile of 15 books to be divided equally among 3 boys. If each boy take off one book, how many will be taken off? How many times can they take off one book apiece? Then how many will each boy have? How many times 3 in 15?

If 18 books be divided equally among 3 boys, how many will each get? How many times 3 in 18?

In a basket there are 30 apples to be divided equally among 6 boys. If they all take out one apple apiece, how many will there be taken out? How many times can they all take out one apiece? Then how many will each boy have? How many times 6 in 30?

If 42 apples be divided equally among 6 boys, how many will each have? How many times 6 in 42?

3 boys have agreed to make up a pile of 12 books, each boy putting on an equal number. How many must each put on? How many times 3 in 12?

John ate 32 apples in 8 days, eating an equal number each day. How many did he eat in one day?

If you had 30 walnuts to divide equally among 5 boys, what number would you give to each boy?

If a school of 56 scholars be divided into 7 equal classes, how many will there be in each class?

MISCELLANEOUS EXAMPLES.

Note to Teachers. The books may be open during the recitation of all the subsequent lessons, and the questions may be read either by the scholars or by the teacher. Every answer should fully express the process of the solution, and the reasoning in the case. It is, however, essential that the learner's own apprehension should direct him in the process of solution; therefore, he should not be compelled, nor even allowed to use any form of expression that he has not made his own The child's first attempts at reasoning, however puerile, should be received kindly, and corrected in a manner not likely to destroy his reliance upon his own understanding.

LESSON FIRST. I.

1. If a book cost 10 cents, and a pencil cost 7 cents, how many cents will it take to buy them both?

Answer. 10 cents and 7 cents are 17 cents.

2. There were 16 trees standing in a garden, but 9 of them have been cut down. How many remain?

Answer. 9 trees from 16 trees leave 7 trees.

3. If you should buy 6 books, and pay 9 cents apiece for them, how many cents would the whole cost?

Answer. If one book cost 9 cents, 6 books will cost 6 times 9 cents. 6 times 9 cents are 54 cents.

4. If 5 plates lie on one side of a table, and 4 on the other, how many are there on both sides?

5. While a flock of 15 wild geese were flying over, a gunner shot 4 of them. How many escaped?

6. A market-man sold 10 barrels of apples, at 3 dollars a barrel. How many dollars did he receive?

7. Alfred learned the answers of 13 questions, but he forgot 4 of them. How many did he remember?

8. How many cents will it take to buy two pictures, if one cost 3 cents, and the other 9 cents?

9. Lucy has 6 picture-books, that cost 8 cents apiece. How many cents did the whole cost?

10. There are 17 apples in a fruit-basket, but 8 of them are defective. How many are sound?

11. Victoria has 4 sisters older than herself, and 3 younger than herself. How many sisters has she?